
CASE STUDY

A LARGE TEXAS BASED REFINERY WITH TWO COKING UNITS PRODUCING FUEL GRADE QUALITY DISTILLATES, LPG, PETROCHEMICAL FEEDS AND SULFUR.





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THE CHALLENGE

The refinery was experiencing major issues with a high temperature gas oil backwash feed filter system in the Hydrocracking unit. Due to higher usage of opportunity crudes, the backwash filter system needed constant maintenance, a challenge that many refineries face.

This led to:

- Unscheduled maintenance on the hydrocracking unit two years into its six-year turnaround cycle
- Frequent filter element change-outs for external cleaning (four to eight times per year) leading to safety concerns
- High cost of filter element maintenance driven by the need for excessive external cleaning

Our team was challenged to improve feed filtration, reduce the filter maintenance expense, and improve the cycle length of the hydrocracker multimillion-dollar catalyst.

THE SOLUTION

Jonell Systems conducted extensive testing of the feed and identified the root cause of the performance issues.

To optimize the filtration solution, the team designed a pre-filter that was installed upstream of the backwash feed filter system. The team then developed a custom high temperature high flow cartridge filter that could reliably remove contaminants at 425 F.

Through extensive analysis, the filter structure and media composition of the cartridge were engineered to provide optimal removal efficiency while extending change out frequency. This dramatically enhanced the efficiency of the backwash filter system, eliminated external filter element cleaning, and provided the needed protection of the catalyst beds in the reactor.

THE RESULTS

In less than three months, the frequency of filter element cleaning had been eliminated, saving approximately \$2 million per year in filter maintenance expense. The project also reduced the number of catalyst changes between turnarounds, equating to an estimate of greater than \$50 million savings over the six-year cycle.

Our delighted customer:

"I am writing to commend the support and the performance of Jonell. With the successes that we have been able to partner on it excites us to have such a solid relationship to build on the synergy created knowing there will be future opportunities for collaboration."

In today's business I have many options; some vendors pride themselves on providing an adequate solution and cheap prices undercutting competition. Jonell has not had to compromise on price because they have proved multiple times that the solutions and support they provide, along with superior products, add unmatched value."

ADDRESS

900 Industrial Parkway
P.O. Box 1092
Breckenridge, Texas 76424 USA

CONTACT

P: +1 254-559-7591 | +1 844 GO FILTR
E: jonellsalesinfo@filtrationgroup.com
W: www.jonellsystems.com

